

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: Robinson, Harriet L.
Fynan, Ellen F.
Webster, Robert G.
Lu, Shan
- (ii) TITLE OF INVENTION: IMMUNIZATION BY INOCULATION OF DNA
TRANSCRIPTION UNIT
- (iii) NUMBER OF SEQUENCES: 19
- (iv) CORRESPONDENCE ADDRESS:
 - (A) ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C.
 - (B) STREET: Two Militia Drive
 - (C) CITY: Lexington
 - (D) STATE: Massachusetts
 - (E) COUNTRY: USA
 - (F) ZIP: 02173
- (v) COMPUTER READABLE FORM:
 - (A) MEDIUM TYPE: Floppy disk
 - (B) COMPUTER: IBM PC compatible
 - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
 - (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
- (vi) CURRENT APPLICATION DATA:
 - (A) APPLICATION NUMBER: US 08/187,879
 - (B) FILING DATE: 27-JAN-1994
 - (C) CLASSIFICATION:
- (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER: US 08/009,833
 - (B) FILING DATE: 27-JAN-1993
- (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER: US 07/855,562
 - (B) FILING DATE: 23-MAR-1992
- (viii) ATTORNEY/AGENT INFORMATION:
 - (A) NAME: Granahan, Patricia
 - (B) REGISTRATION NUMBER: 32,227
 - (C) REFERENCE/DOCKET NUMBER: UMMC91-03A2
- (ix) TELECOMMUNICATION INFORMATION:
 - (A) TELEPHONE: (617) 861-6240
 - (B) TELEFAX: (617) 861-9540

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 43 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GTCGCTCCTC TAGATTGTGG GTCACAGTCT ATTATGGGGT ACC

43

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 35 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

GGTCGGATCC TTACTGCACC ACTCTTCTCT TTGCC

35

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 35 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

CGACGGATCC TTATGTTATG TCAAACCAAT TCCAC

35

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Ile | Gln | Arg | Gly | Pro | Gly | Arg | Ala | Phe | Val | Thr | Ile | Gly | Lys |
| 1 | | | | 5 | | | | | 10 | | | | 15 | |

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Cys Thr Arg Pro Asn Tyr Thr Thr Arg Lys Arg Ile His Ile Gly Pro
1 5 10 15

Gly Arg Ala Phe Tyr Thr Thr Lys Asn Ile Ile Gly Asn Ile Lys Gln
20 25 30

Ala His

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 35 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Cys Thr Arg Pro Asn Tyr Lys Thr Arg Ser Arg Ile His Ile Gly Pro
1 5 10 15

Gly Arg Ala Phe Tyr Thr Thr Lys Asn Ile Arg Gly Asp Ile Arg Gln
20 25 30

Ala His Cys
35

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Cys Thr Arg Pro Asn Tyr Lys Thr Arg Ser Arg Ile His Ile Gly Pro
1 5 10 15

Gly Arg

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 amino acids
- (B) TYPE: amino acid

- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Cys Thr Arg Pro Asn Tyr Lys Thr Ser Arg Arg Ile His Ile Gly Pro
1 5 10 15

Gly Arg Ser Phe Tyr Thr
20

(2) INFORMATION FOR SEQ ID NO:9:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 35 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly Pro
1 5 10 15

Gly Arg Ala Ile Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile Arg Gln
20 25 30

Ala His Cys
35

(2) INFORMATION FOR SEQ ID NO:10:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly Pro
1 5 10 15

Gly Arg Ala Ile Tyr Thr Thr
20

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 30 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly Pro
1 5 10 15
Gly Arg Ala Phe Tyr Thr Thr Ala Ile Ile Gly Asp Ile Arg
 20 25 30

(2) INFORMATION FOR SEQ ID NO:12:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Arg Arg Ile His Ile Gly Pro
1 5 10 15
Gly Arg Ala Ile Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile Arg Gln
 20 25 30
Ala His Cys
 35

(2) INFORMATION FOR SEQ ID NO:13:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Arg Arg Ile His Ile Gly Pro
1 5 10 15
Gly Arg Ala Ile Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile Arg Gln
 20 25 30
Ala His Cys
 35

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Arg Arg Ile His Ile Gly Pro
1 5 10 15

Gly Arg Ala Ile Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile Arg Gln
 20 25 30

Ala His Cys
 35

(2) INFORMATION FOR SEQ ID NO:15:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Arg Arg Ile His Ile Gly Pro
1 5 10 15

Gly Arg Ala

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Arg Arg Ile His Ile Gly Pro
1 5 10 15

Gly Arg Ala Ile Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile Arg Gln
 20 25 30

Ala His Cys
 35

(2) INFORMATION FOR SEQ ID NO:17:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Arg Arg Ile His Ile Gly Pro
1 5 10 15
Gly Arg Ala Ile Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile Arg Gln
 20 25 30
Ala His Cys
 35

(2) INFORMATION FOR SEQ ID NO:18:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Arg Arg Ile His Ile Gly Pro
1 5 10 15
Gly Arg Ala

(2) INFORMATION FOR SEQ ID NO:19:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly Pro
1 5 10 15
Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile Arg Gln
 20 25 30
Ala His Cys
 35